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        APR 26
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        APR 26
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BROMIDE MONHYDRATE))

=> s inhalant and (tiotropium or (tiotropium bromide) or (tiotropium bromide monhydrate))
L1 60 INHALANT AND (TIOTROPIUM OR (TIOTROPIUM BROMIDE) OR (TIOTROPIUM

=> s l1 and (particle# or particulate#)

L2 29 L1 AND (PARTICLE# OR PARTICULATE#)

=> s 12 and powder?

L3 19 L2 AND POWDER?

=> s 13 and capsule?

L4 13 L3 AND CAPSULE?

=> s 14 and (COPD or asthma)

L5 5 L4 AND (COPD OR ASTHMA)

=> s 15 and (method or process) and (making or preparation or manufacture) 6 FILES SEARCHED...

L6 2 L5 AND (METHOD OR PROCESS) AND (MAKING OR PREPARATION OR MANUFA CTURE)

=> d 16 1-2 IBIB ABA

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L6 ANSWER 1 OF 2 USPATFULL on STN

AB The present invention pertains to the identification of moieties and methods of using the same for preventing tolerance to bronchodilators. More specifically, the present invention pertains to the identification of compositions and methods which are capable of preventing tolerance to  $\beta.sub.2$  -adrenergic agonists. The methods and compositions according to the invention are also useful as analytical tools for functional studies and as combination therapeutic tools.

ANSWER 2 OF 2 EUROPATFULL COPYRIGHT 2004 WILA on STN L6 A pharmaceutical composition for topical administration for prevention ABEN and/or treatment of diseases associated with decrease in bone mass comprising an EP.sub4. agonist as an active ingredient. An EP.sub4. agonist, in which includes a compound possessing prostaglandin skeleton as a representative, possesses promoting action on bone formation, so it is useful for prevention and/or treatment of diseases associated with decrease in bone mass (bone diseases such as primary osteoporosis, secondary osteoporosis, bone metastasis of cancer, hypercalcemia, Paget's disease, bone loss and bone necrosis, postoperative osteogenesis, alternative therapy for bone grafting).

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=> d 16 1-2 IBIB AB

1.6 ANSWER 1 OF 2 USPATFULL on STN

ACCESSION NUMBER:

2001:75378 USPATFULL TITLE:

Methods and compositions for the prevention of

tolerance to medications

INVENTOR(S): Ahmed, Tahir, Coral Gables, FL, United States

PATENT ASSIGNEE(S): Baker Norton Pharmaceuticals, Inc., Miami, FL, United

States (U.S. corporation)

NUMBER KIND DATE -----US 6235725 B1 20010522 US 1999-362540 19990728 PATENT INFORMATION: APPLICATION INFO.: 19990728 (9)

NUMBER DATE -----

PRIORITY INFORMATION: US 1998-106507P 19981030 (60)

DOCUMENT TYPE: Utility FILE SEGMENT: Granted

PRIMARY EXAMINER: Peselev, Elli

LEGAL REPRESENTATIVE: Levi-Minzi, Simona A.

NUMBER OF CLAIMS: 35 EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS:

LINE COUNT:

2 Drawing Figure(s); 2 Drawing Page(s)

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

The present invention pertains to the identification of moieties and AΒ methods of using the same for preventing tolerance to bronchodilators. More specifically, the present invention pertains to the identification of compositions and methods which are capable of preventing tolerance to  $\beta.sub.2$  -adrenergic agonists. The methods and compositions according to the invention are also useful as analytical tools for functional studies and as combination therapeutic tools.

ANSWER 2 OF 2 EUROPATFULL COPYRIGHT 2004 WILA on STN L6

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

ACCESSION NUMBER:

1417975 EUROPATFULL EW 200420 FS OS

TITLE:

REMEDIES FOR DISEASES WITH BONE MASS LOSS HAVING EP4

AGONIST AS THE ACTIVE INGREDIENT.

MITTEL ZUR BEHANDLUNG VON ERKRANKUNGEN, DIE MIT KNOCHENSCHWUND EINHERGEHEN, MIT EP4 AGONIST ALS

WIRKSTOFF.

MEDICAMENTS CONTENANT UN AGONISTE DE EP4 EN TANT QUE PRINCIPE ACTIF DESTINES AUX MALADIES ASSOCIEES A UNE

PERTE DE LA MASSE OSSEUSE.

INVENTOR(S):

MARUYAMA, Toru, c/o Minase Res. Inst., Ono Pharm., Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

KOBAYASHI, Kaoru, c/o Minase Res. Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

KAMBE, Tohru, c/o Minase Res. Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-qun, Osaka 618-8585, JP;

MARUYAMA, Takayuki, c/o Minase Res. Inst., Ono Pha, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Miishima-gun, Osaka 618-8585, JP;

YOSHIDA, Hideyuki, c/o Minase Res Inst, Ono Pharm., Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP;

NISHIURA, Akio, c/o Minase Res Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-qun,

Osaka 618-8585, JP;

ABE, Nobutaka, c/o Minase Res Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP

PATENT ASSIGNEE(S):

ONO PHARMACEUTICAL CO., LTD., 1-5, Doshomachi 2-chome,

Chuo-ku, Osaka-shi, Osaka 541-8526, JP

PATENT ASSIGNEE NO:

AGENT:

Henkel, Feiler & Haenzel, Moehlstrasse 37, 81675

Muenchen, DE

AGENT NUMBER:

100401

OTHER SOURCE:

MEPA2004039 EP 1417975 A1 0322

SOURCE:

Wila-EPZ-2004-H20-T1b

DOCUMENT TYPE:

Patent

LANGUAGE:

Anmeldung in Japanisch; Veroeffentlichung in Englisch;

Verfahren in Englisch

DESIGNATED STATES:

R AT; R BE; R BG; R CH; R CY; R CZ; R DE; R DK; R EE; R ES; R FI; R FR; R GB; R GR; R IE; R IT; R LI; R LU; R MC; R NL; R PT; R SE; R SK; R TR; R AL; R LT; R LV; R

MK; R RO; R SI

PATENT INFO.PUB.TYPE:

EPA1 EUROPAEISCHE PATENTANMELDUNG (Internationale

Anmeldung)

PATENT INFORMATION:

PATENT NO KIND DATE ------EP 1417975 A1 20040512

'OFFENLEGUNGS' DATE:

20040512

APPLICATION INFO.:

· EP 2002-747707

20020722

PRIORITY APPLN. INFO.: JP 2001-2001222148 20010723 JP 2001-2001239895 20010807 JP 2002-2002056449 20020301 RELATED DOC. INFO.: WO 02-JP7385 020722 INTAKZ 030206 INTPNR WO 2003009872 ABEN A pharmaceutical composition for topical administration for prevention and/or treatment of diseases associated with decrease in bone mass comprising an EP.sub4. agonist as an active ingredient. An EP.sub4. agonist, in which includes a compound possessing prostaglandin skeleton as a representative, possesses promoting action on bone formation, so it is useful for prevention and/or treatment of diseases associated with decrease in bone mass (bone diseases such as primary osteoporosis, secondary osteoporosis, bone metastasis of cancer, hypercalcemia, Paget's disease, bone loss and bone necrosis, postoperative osteogenesis, alternative therapy for bone grafting). => d his (FILE 'HOME' ENTERED AT 16:10:09 ON 10 JUN 2004) FILE 'CAPLUS, USPATFULL, EUROPATFULL, JAPIO, MEDLINE, BIOSIS, EMBASE' ENTERED AT 16:10:45 ON 10 JUN 2004 L1 60 S INHALANT AND (TIOTROPIUM OR (TIOTROPIUM BROMIDE) OR (TIOTROPI 29 S L1 AND (PARTICLE# OR PARTICULATE#) L2L3 19 S L2 AND POWDER? L4 13 S L3 AND CAPSULE? L5 5 S L4 AND (COPD OR ASTHMA) L6 2 S L5 AND (METHOD OR PROCESS) AND (MAKING OR PREPARATION OR MAN => d 15 1-5 L5 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN AN2003:757705 CAPLUS DN139:265796 Preparation of micronized crystalline tiotropium bromide TTmonohydrate and formulation as inhalant to treat asthma and COPD IN Bender, Helmut; Graebner, Hagen; Schindler, Konrad; Trunk, Michael Josef Friedrich; Walz, Michael PA Boehringer Ingelheim Pharma Gmbh & Co. Kg, Germany SO PCT Int. Appl., 31 pp. CODEN: PIXXD2 DТ Patent LΑ German FAN.CNT 1 PATENT NO. KIND DATE APPLICATION NO. DATE ---------\_\_\_\_\_ \_\_\_\_ PΙ WO 2003078429 **A**1 20030925 WO 2003-EP2422 20030310 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG DE 10212264 20031002 DE 2002-10212264 20020320 A1 US 2004002510 A1 20040101 US 2003-385175 20030310

PRAI DE 2002-10212264 A

US 2002-413129P P

20020320

20020924

#### RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT ANSWER 2 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN L5 2002:368320 CAPLUS ANDN136:374855 Inhalant compositions containing tiotropium salts and TIsalmeterol salts Schmelzer, Christel; Nagel, Juergen IN Boehringer Ingelheim Pharma K.-G., Germany PA PCT Int. Appl., 36 pp. SO CODEN: PIXXD2 DT Patent LA German FAN.CNT 1 PATENT NO. KIND DATE APPLICATION NO. DATE \_\_\_\_ -----\_\_\_\_\_\_ WO 2001-EP12962 20011109 PΙ **A1** 20020516 WO 2002038154 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG 20020523 DE 2000-10056104 20001113 DE 10056104 Α1 AU 2002027910 20020521 AU 2002-27910 Α5 20011109 EP 1335728 20030820 EP 2001-989446 A1 20011109 AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR BR 2001015226 20031007 BR 2001-15226 Α 20011109 EE 2003-228 EE 200300228 Α 20031015 20011109 JP 2004513146 T2 20040430 JP 2002-540737 20011109 US 2002193392 A1 20021219 US 2001-54567 20011113 NO 2003002111 Α 20030708 NO 2003-2111 20030512 PRAI DE 2000-10056104 A 20001113 US 2000-251603P Ρ 20001206 WO 2001-EP12962 W 20011109 RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT L5ANSWER 3 OF 5 CAPLUS COPYRIGHT 2004 ACS on STN AN 2001:689613 CAPLUS DN 136:390861 ΤI Effective delivery of particles with the HandiHaler dry powder inhalation system over a range of chronic obstructive pulmonary disease severity AU Chodosh, Sanford; Flanders, Judith S.; Kesten, Steven; Serby, Charles W.; Hochrainer, Dieter; Witek, Theodore J., Jr. CS Veterans Administration Outpatient Clinic, Pulmonary Research, Boston, MA, SO Journal of Aerosol Medicine (2001), 14(3), 309-315 CODEN: JAEMEP; ISSN: 0894-2684 PB Mary Ann Liebert, Inc. DT Journal LA English RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

Methods and compositions for the prevention of tolerance to medications

ANSWER 4 OF 5 USPATFULL on STN

Ahmed, Tahir, Coral Gables, FL, United States

2001:75378 USPATFULL

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Baker Norton Pharmaceuticals, Inc., Miami, FL, United States (U.S.
PA
       corporation)
PΙ
       US 6235725
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PRAI
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CAS INDEXING IS AVAILABLE FOR THIS PATENT.
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       ANSWER 5 OF 5 EUROPATFULL COPYRIGHT 2004 WILA on STN
PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET
AN
       1417975 EUROPATFULL ED 20040513 EW 200420 FS OS
       REMEDIES FOR DISEASES WITH BONE MASS LOSS HAVING EP4 AGONIST AS THE
TIEN
       ACTIVE INGREDIENT.
TIDE
       MITTEL ZUR BEHANDLUNG VON ERKRANKUNGEN, DIE MIT KNOCHENSCHWUND
       EINHERGEHEN, MIT EP4 AGONIST ALS WIRKSTOFF.
TIFR
       MEDICAMENTS CONTENANT UN AGONISTE DE EP4 EN TANT QUE PRINCIPE ACTIF
       DESTINES AUX MALADIES ASSOCIEES A UNE PERTE DE LA MASSE OSSEUSE.
IN
       MARUYAMA, Toru, c/o Minase Res. Inst., Ono Pharm., Co., Ltd., 1-1,
       Sakurai 3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP;
       KOBAYASHI, Kaoru, c/o Minase Res. Inst., Ono Pharm, Co., Ltd., 1-1,
       Sakurai 3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP;
       KAMBE, Tohru, c/o Minase Res. Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai
       3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP;
       MARUYAMA, Takayuki, c/o Minase Res. Inst., Ono Pha, Co., Ltd., 1-1,
       Sakurai 3-chome, Shimamoto-cho, Miishima-gun, Osaka 618-8585, JP;
       YOSHIDA, Hideyuki, c/o Minase Res Inst, Ono Pharm., Co., Ltd., 1-1,
       Sakurai 3-chome, Shimamoto-cho, Mishima-qun, Osaka 618-8585, JP;
       NISHIURA, Akio, c/o Minase Res Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai
       3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP;
       ABE, Nobutaka, c/o Minase Res Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai
       3-chome, Shimamoto-cho, Mishima-gun, Osaka 618-8585, JP
PΑ
       ONO PHARMACEUTICAL CO., LTD., 1-5, Doshomachi 2-chome, Chuo-ku,
       Osaka-shi, Osaka 541-8526, JP
SO
       Wila-EPZ-2004-H20-T1b
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60 S INHALANT AND (TIOTROPIUM OR (TIOTROPIUM BROMIDE) OR (TIOTROPI

L1L229 S L1 AND (PARTICLE# OR PARTICULATE#)

L319 S L2 AND POWDER?

L413 S L3 AND CAPSULE?

5 S L4 AND (COPD OR ASTHMA)

2 S L5 AND (METHOD OR PROCESS) AND (MAKING OR PREPARATION OR MAN 1.6

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MISSING OPERATOR L4 1-13

The search profile that was entered contains terms or nested terms that are not separated by a logical operator.

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ANSWER 1 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
                        2003:757705 CAPLUS
ACCESSION NUMBER:
                        139:265796
DOCUMENT NUMBER:
                        Preparation of micronized crystalline
TITLE:
                        tiotropium bromide monohydrate and
                         formulation as inhalant to treat asthma and
                         COPD
                        Bender, Helmut; Graebner, Hagen; Schindler, Konrad;
INVENTOR(S):
                         Trunk, Michael Josef Friedrich; Walz, Michael
                         Boehringer Ingelheim Pharma Gmbh & Co. Kg, Germany
PATENT ASSIGNEE(S):
                         PCT Int. Appl., 31 pp.
SOURCE:
                         CODEN: PIXXD2
DOCUMENT TYPE:
                         Patent
                         German
LANGUAGE:
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:
                                         APPLICATION NO. DATE
     PATENT NO.
                     KIND DATE
                                          ______
     ______
                                         WO 2003-EP2422 20030310
                     A1 20030925
     WO 2003078429
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             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
             PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT,
             TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ,
            MD, RU, TJ, TM
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             ML, MR, NE, SN, TD, TG
                                          DE 2002-10212264 20020320
                      A1
                            20031002
     DE 10212264
                                          US 2003-385175
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     US 2004002510
                       Α1
                            20040101
                                       DE 2002-10212264 A 20020320
PRIORITY APPLN. INFO.:
                                       US 2002-413129P P 20020924
     The invention relates to a micronized crystalline (lalpha, 2beta, 4beta,
AΒ
     5alpha, 7beta)-7-[(hydroxydi-2-thienylacetyl)oxy]-9,9-dimethyl-3-oxa-9-
     azoniatricyclo[3.3.1.02,4] nonane bromide, methods for the production thereof,
     and the use thereof for producing a medicament, particularly for producing
     a medicament having an anticholinergic effect. The preparation of
     tiotropium bromide monohydrate microcrystals includes
     the solution of tiotropium bromide in water, heating,
     clarification with active carbon, filtration and slow crystallization followed
by
     micronization in an air jet mill under nitrogen atmospheric and exposing the
     micronized crystals to water vapor. Parameters of the monocline crystals
     are given. Micronized crystalline tiotropium bromide
     monohydrate is formulated to encapsulated inhalation powder and
     used to treat asthma and COPD. Thus inhalation capsules
     contained (mg): micronized tiotropium bromide 0.0225;
     lactose monohydrate (200 M) 5.2025; lactose monohydrate (5 µm) 0.2750;
     hard gelatin capsules 49.0.
                               THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
REFERENCE COUNT:
                         2
                               RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
     ANSWER 2 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
                         2002:889143 CAPLUS
ACCESSION NUMBER:
                         137:358198
DOCUMENT NUMBER:
                         Stable powder inhalation dosage formulation
TITLE:
                         Etzler, Frank M.
INVENTOR(S):
                        Boehringer Ingelheim Pharmaceuticals, Inc., USA
PATENT ASSIGNEE(S):
SOURCE:
                         U.S., 6 pp.
```

CODEN: USXXAM

DOCUMENT TYPE:

Patent English

LANGUAGE:

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE \_\_\_\_\_ **\_\_\_\_\_ \_\_\_\_** <del>-----</del> \_\_\_\_\_ US 2001-885349 20010620 US 6482429 B1 20021119 .WO 2003000240 A2 20030103 WO 2002-US18406 20020611 WO 2003000240 A3 20030306

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,

UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,

CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1401409 A2 20040331 EP 2002-732063 20020611 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,

IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.:

US 2001-885349 A 20010620 WO 2002-US18406 W 20020611

An insufflation for the administration of a drug, e.g., ipratropium bromide, albuterol sulfate or tiotropium bromide, into a body cavity is described where the carrier for the drug is a finely divided powder selected from the group consisting of myoinositol, mannitol and cellobiose. For example, the cellobiose blend with ipratropium bromide which was inhaled from capsules into Aerobreather at 20, 40 and 60 L/min has a lower mean particle size than the lactose blend, which is the opposite of the particle sizing results from the Aerosizer. The peaks of the distributions for the cellobiose blend were shifted to lower particle sizes than the lactose blend at all inhalation rates. The difference could reflect differences in adhesion strength, particle size distribution or size selection of retained particles.

REFERENCE COUNT:

THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:

2002:695761 CAPLUS

DOCUMENT NUMBER:

137:237718

TITLE:

Inhalant compositions containing

anticholinergics and PDE IV inhibitors

INVENTOR(S):

Meade, Christopher John Montague; Pairet, Michel;

Pieper, Michael Paul

PATENT ASSIGNEE(S): SOURCE:

Boehringer Ingelheim Pharma K.-G., Germany

PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DOCUMENT TYPE: ·

Patent

LANGUAGE:

German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PAT	CENT :	NO.		KI	ND	DATE			A	PPLI	CATI	ON NO	ο.	DATE			
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WO	2002	06994	45	A:	2	2002	0912		W	0 20	02-E	P198	8	2002	0226		
WO	2002	06994	45	A.	3	2003	0130										
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		GM,	HR,	HU,	ID,	IL,	IN,	IS,	JP,	KΕ,	KG,	KΡ,	KR,	ΚZ,	LC,	LK,	LR,
		LS,	LT,	LU,	LV,	MA,	MD,	MG,	MK,	MN,	MW,	MX,	MZ,	NO,	NZ,	OM,	PH,
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                                         DE 2001-10110772 20010307
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                                          EP 2002-727329 20020226
     EP 1372649
                      A2
                            20040102
         R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
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PRIORITY APPLN. INFO.:
                                       DE 2001-10110772 A
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OTHER SOURCE(S):
                         MARPAT 137:237718
     The invention relates to drug compns. based on anticholinergics and PDE IV
     inhibitors, to methods for their production, and to their use as inhalants for
     the treatment of respiratory tract diseases. Thus an inhalation
     powder was composed of capsules that contained (µg/
     capsule): tiotropium bromide 21.7; AWD-12-281
     200; lactose 4778.3.
     ANSWER 4 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:
                         2002:487380 CAPLUS
                         137:68157
DOCUMENT NUMBER:
                         Inhalant compositions containing
TITLE:
                         anticholinergics and dopamine agonists
INVENTOR(S):
                         Pairet, Michel; Pieper, Michael Paul; Meade,
                         Christopher John Montaque
PATENT ASSIGNEE(S):
                         Boehringer Ingelheim Pharma Kg, Germany
SOURCE:
                         PCT Int. Appl., 31 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:
                         Patent
LANGUAGE:
                         German
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:
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                     KIND DATE
                                           APPLICATION NO. DATE
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     WO 2002049624
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                                           WO 2001-EP14568 20011212
     WO 2002049624
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             UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
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                                           JP 2002-550966
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     US 2002122773
                      Α1
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PRIORITY APPLN. INFO.:
                                       DE 2000-10063957 A 20001220
                                       US 2000-257221P P
                                                            20001221
                                        WO 2001-EP14568 W 20011212
AΒ
     The invention relates to novel pharmaceutical compns. based on
     anticholinergic agents and dopamine agonists, a method for the production of
     the compns. and the use of the same for the treatment of respiratory tract
     diseases. Thus an inhalation powder contained per
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capsule (µg): tiotropium bromide 21.7;

viozan 270; lactose 4708.3.

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ANSWER 5 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:
                         2002:465799 CAPLUS
DOCUMENT NUMBER:
                         137:37667
TITLE:
                         Inhalant compositions containing
                         anticholinergics and ciclesonide corticosteroid
INVENTOR(S):
                         Pairet, Michel; Pieper, Michael Paul; Meade,
                         Christopher John Montague
PATENT ASSIGNEE(S):
                         Boehringer Ingelheim Pharma K.-G., Germany
SOURCE:
                         PCT Int. Appl., 26 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:
                         Patent
LANGUAGE:
                         German
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:
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                      KIND DATE
                                           APPLICATION NO. DATE
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     WO 2002047668
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     WO 2002047668
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             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
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     DE 10062712
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     JP 2004515528
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                                           JP 2002-549242
                                                             20011212
PRIORITY APPLN. INFO.:
                                        DE 2000-10062712 A 20001215
                                        DE 2000-10054042 A
                                                            20001031
                                        US 2000-253613P P
                                                            20001128
                                        US 2000-257220P P
                                                            20001221
                                        WO 2001-EP14579 W 20011212
AB
     The invention relates to novel medicament compns. based on
     anticholinesterase drugs and on ST-126, to methods for their production, and
     to their use in treating respiratory tract diseases. Thus an inhalation
     powder contained per capsule (µg): tiotropium
     bromide x H2O 22.5; ciclesonide 250; lactose 4727.5.
     ANSWER 6 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:
                         2002:465798 CAPLUS
DOCUMENT NUMBER:
                         137:52368
TITLE:
                         Inhalant compositions containing
                         anticholinergics and ST-126 corticosteroid
INVENTOR(S):
                         Pairet, Michel; Pieper, Michael Paul; Meade,
                         Christopher John Montague
                         Boehringer Ingelheim Pharma K.-G., Germany
PATENT ASSIGNEE(S):
SOURCE:
                         PCT Int. Appl., 26 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:
                         Patent
LANGUAGE:
                         German
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:
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PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002047667	A2	20020620	WO 2001-EP14567	20011212
WO 2002047667	A3	20021024		

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             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT,
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     US 2002183292
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                            20021205
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PRIORITY APPLN. INFO.:
                                        DE 2000-10062712 A
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                                        DE 2000-10054042 A
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                                        US 2000-253613P
                                                         Р
                                                             20001128
                                        US 2000-257220P
                                                         ₽
                                                            20001221
                                        WO 2001-EP14567
                                                         W
                                                             20011212
     The invention relates to novel medicament compns. based on
     anticholinesterase drugs and on ST-126 corticosteroid, to methods for
     their production, and to their use in treating respiratory tract diseases.
     Thus an inhalation powder contained per capsule
     (μg): tiotropium bromide x H2O 22.5; ST-126 250;
     lactose 4727.5.
     ANSWER 7 OF 13
                     CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:
                         2002:368320
                                     CAPLUS
DOCUMENT NUMBER:
                         136:374855
TITLE:
                         Inhalant compositions containing
                         tiotropium salts and salmeterol salts
INVENTOR(S):
                         Schmelzer, Christel; Nagel, Juergen
PATENT ASSIGNEE(S):
                         Boehringer Ingelheim Pharma K.-G., Germany
SOURCE:
                         PCT Int. Appl., 36 pp.
                         CODEN: PIXXD2
DOCUMENT TYPE:
                         Patent
LANGUAGE:
                         German
FAMILY ACC. NUM. COUNT:
PATENT INFORMATION:
     PATENT NO.
                      KIND
                            DATE
                                           APPLICATION NO.
                                                           DATE
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     WO 2002038154
                       Α1
                            20020516
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         W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
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             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,
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         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
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    AU 2002027910
                            20020521
                                           AU 2002-27910
                       Α5
                                                            20011109
                            20030820
                                           EP 2001-989446
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                       Α
                                           EE 2003-228
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WO 2001-EP12962 The invention relates to novel drug compns. based on tiotropium AB

JP 2002-540737

US 2001-54567

NO 2003-2111

DE 2000-10056104 A

US 2000-251603P P

20011109

20011113

20030512

20001113

20001206

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W

20040430

20021219

20030708

T2

Α1

Α

JP 2004513146

US 2002193392

NO 2003002111

PRIORITY APPLN. INFO.:

salts and on salmeterol salts, a method for their production and their use for treating respiratory conditions. Thus an inhalation powder

contained per capsule (µg): tiotropium

bromide 10.8; salmeterol x 1/2 H2SO4 27.9; Lactose 4961.3.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:

2002:353268 CAPLUS

DOCUMENT NUMBER:

136:374832

TITLE:

Inhalant compositions containing
anticholinergics and corticosteroids

INVENTOR(S):

Pairet, Michel; Pieper, Michael Paul; Meade,

Christopher John Montague; Reichl, Richard; Schmelzer,

Christel

PATENT ASSIGNEE(S):

Boehringer Ingelheim Pharma K.-G., Germany

SOURCE:

PCT Int. Appl., 28 pp.

DOCUMENT TYPE:

CODEN: PIXXD2

LANGUAGE:

Patent German

FAMILY ACC. NUM. COUNT: 6

PATENT INFORMATION:

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PATENT NO.
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     WO 2002036106
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     WO 2002036106
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             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,
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                                        US 2001-314599P P
                                                            20010824
                                        WO 2001-EP12511 W
                                                            20011023
                                        US 2001-40196
                                                        B1 20011025
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AB The invention relates to novel drug compns. based on anticholinergics and corticosteroids, a method for their production and their use for treating respiratory conditions. Thus an inhalation powder contained per capsule (μg): tiotropium bromide 21.7; budesonide 200; Lactose 4778.3.

L4 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER:

2001:689613 CAPLUS

DOCUMENT NUMBER:

136:390861

TITLE:

Effective delivery of particles with the HandiHaler dry powder inhalation system over

a range of chronic obstructive pulmonary disease

severity

Chodosh, Sanford; Flanders, Judith S.; Kesten, Steven; AUTHOR(S):

Serby, Charles W.; Hochrainer, Dieter; Witek, Theodore

J., Jr.

Veterans Administration Outpatient Clinic, Pulmonary CORPORATE SOURCE:

Research, Boston, MA, USA

Journal of Aerosol Medicine (2001), 14(3), 309-315 SOURCE:

CODEN: JAEMEP; ISSN: 0894-2684

PUBLISHER: Mary Ann Liebert, Inc.

DOCUMENT TYPE: Journal LANGUAGE: English

The HandiHaler is a dry powder breath activated inhaler system developed for inhalation therapy for patients with airway disease. Its operation is based on the evacuation of powder from a pierced capsule. We sought to document the inspiratory flow rates attained by patients inspiring through the HandiHaler with various degrees of airflow limitation. Subjects with stable chronic obstructive pulmonary disease (COPD) were the study's population. An in vitro study of fine particle dose was conducted using an Andersen Cascade Impactor to assess medication delivery at low inspiratory flow rates. Subsequently, an in vivo study was conducted to determine inspiratory flow rates in patients with COPD as measured through a pneumotach with a custom coupler device with and without the HandiHaler. Patients were classified into three approx. equal groups of spirometric severity ranging from mild (46-65% predicted normal forced expiratory volume in 1 s [FEV1]), to moderate (28-45%) to severe  $(\leq 27\%)$ . The in vitro study indicated delivery of medication at flow rates as low as 20 L/min. Twenty-six men completed the in vivo study (age  $66.9\pm10.9 \text{ yr}$ , FEV1 =  $1.02\pm0.451$ .). The median peak inspiratory flow rates attained in the mild (n = 8), moderate (n = 10), and severe (n = 8) categories were 45, 45.6, and 35.4 L/min resp. The min. peak inspiratory flow rates in the three groups were 28.2,

REFERENCE COUNT:

THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ANSWER 10 OF 13 USPATFULL on STN

patients with COPD.

ACCESSION NUMBER: 2001:75378 USPATFULL

Methods and compositions for the prevention of TITLE:

tolerance to medications

21.6 and 20.4 L/min. The HandiHaler device effectively delivers particles to the lung over a wide range of airflow limitation in

INVENTOR(S): Ahmed, Tahir, Coral Gables, FL, United States

Baker Norton Pharmaceuticals, Inc., Miami, FL, United PATENT ASSIGNEE(S):

States (U.S. corporation)

NUMBER KIND DATE -----US 6235725 B1 20010522 US 1999-362540 19990728 PATENT INFORMATION: APPLICATION INFO.: 19990728 (9)

NUMBER DATE

-----

PRIORITY INFORMATION: US 1998-106507P 19981030 (60)

DOCUMENT TYPE: Utility FILE SEGMENT: Granted

PRIMARY EXAMINER: Peselev, Elli

LEGAL REPRESENTATIVE: Levi-Minzi, Simona A.

NUMBER OF CLAIMS: 35 EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS:

2 Drawing Figure(s); 2 Drawing Page(s)

LINE COUNT: 985

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

The present invention pertains to the identification of moieties and methods of using the same for preventing tolerance to bronchodilators. More specifically, the present invention pertains to the identification of compositions and methods which are capable of preventing tolerance to  $\beta.$  sub.2 -adrenergic agonists. The methods and compositions according to the invention are also useful as analytical tools for functional studies and as combination therapeutic tools.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 11 OF 13 USPATFULL on STN

ACCESSION NUMBER: 2001:67205 USPATFULL

TITLE: Supercritical fluid extraction of mould lubricant from

hard shell capsules

INVENTOR(S): Horhota, Stephen T., Brookfield, CT, United States

Saim, Said, New Milford, CT, United States

PATENT ASSIGNEE(S): Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield,

CT, United States (U.S. corporation)

NUMBER KIND DATE

PATENT INFORMATION: US 6228394 B1 20010508

APPLICATION INFO.: US 1998-157267 19980921 (9)

NUMBER DATE

DDIODITY INCODMATION. HC 1997\_62000D 19971014 (60)

PRIORITY INFORMATION: US 1997-62099P 19971014 (60)
DOCUMENT TYPE: Utility

FILE SEGMENT: Granted
PRIMARY EXAMINER: Page, Thurman K.

ASSISTANT EXAMINER: Seidleck, Brian K.

LEGAL REPRESENTATIVE: Raymond, Robert P., Stempel, Alan R., Devlin,

Mary-Ellen M.

NUMBER OF CLAIMS: 21 EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 24 Drawing Figure(s); 12 Drawing Page(s)

LINE COUNT: 1487

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Hard shelled capsules and dry, powdered

pharmaceutical formulations are treated with supercritical fluids to

remove impurities such as mold lubricants and moisture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 12 OF 13 EUROPATFULL COPYRIGHT 2004 WILA on STN

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

ACCESSION NUMBER: 1417975 EUROPATFULL EW 200420 FS OS

TITLE: REMEDIES FOR DISEASES WITH BONE MASS LOSS HAVING EP4

AGONIST AS THE ACTIVE INGREDIENT.

MITTEL ZUR BEHANDLUNG VON ERKRANKUNGEN, DIE MIT KNOCHENSCHWUND EINHERGEHEN, MIT EP4 AGONIST ALS

WIRKSTOFF.

MEDICAMENTS CONTENANT UN AGONISTE DE EP4 EN TANT QUE PRINCIPE ACTIF DESTINES AUX MALADIES ASSOCIEES A UNE

PERTE DE LA MASSE OSSEUSE.

INVENTOR(S): MARUYAMA, Toru, c/o Minase Res. Inst., Ono Pharm., Co.,

Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

KOBAYASHI, Kaoru, c/o Minase Res. Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

KAMBE, Tohru, c/o Minase Res. Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

MARUYAMA, Takayuki, c/o Minase Res. Inst., Ono Pha, Co.,

Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Miishima-gun,

Osaka 618-8585, JP;

YOSHIDA, Hideyuki, c/o Minase Res Inst, Ono Pharm., Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

NISHIURA, Akio, c/o Minase Res Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP;

ABE, Nobutaka, c/o Minase Res Inst., Ono Pharm, Co., Ltd., 1-1, Sakurai 3-chome, Shimamoto-cho, Mishima-gun,

Osaka 618-8585, JP

PATENT ASSIGNEE(S): ONO PHARMACEUTICAL CO., LTD., 1-5, Doshomachi 2-chome,

Chuo-ku, Osaka-shi, Osaka 541-8526, JP

PATENT ASSIGNEE NO:

NO: 435424

AGENT:

Henkel, Feiler & Haenzel, Moehlstrasse 37, 81675

Muenchen, DE

AGENT NUMBER:

100401

OTHER SOURCE: MEPA2004039 EP 1417975 A1 0322

Wila-EPZ-2004-H20-T1b

DOCUMENT TYPE:

Patent

LANGUAGE:

SOURCE:

Anmeldung in Japanisch; Veroeffentlichung in Englisch;

Verfahren in Englisch

DESIGNATED STATES: R AT; R BE; R BG; R CH; R CY; R CZ; R DE; R DK; R EE; R

ES; R FI; R FR; R GB; R GR; R IE; R IT; R LI; R LU; R MC; R NL; R PT; R SE; R SK; R TR; R AL; R LT; R LV; R

MK; R RO; R SI

PATENT INFO.PUB.TYPE: EPA1 EUROPAEISCHE PATENTANMELDUNG (Internationale

Anmeldung)

PATENT INFORMATION:

PATENT NO KIND DATE -----EP 1417975 A1 20040512 'OFFENLEGUNGS' DATE: 20040512 APPLICATION INFO.: EP 2002-747707 20020722 PRIORITY APPLN. INFO.: JP 2001-2001222148 20010723 JP 2001-2001239895 20010807 JP 2002-2002056449 20020301 RELATED DOC. INFO.: WO 02-JP7385 020722 INTAKZ WO 2003009872 030206 INTPNR

L4 ANSWER 13 OF 13 EUROPATFULL COPYRIGHT 2004 WILA on STN

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

ACCESSION NUMBER:

1391200 EUROPATFULL EW 200409 FS OS

TITLE:

DRUG PREPARATIONS.

ARZNEIMITTEL.

PREPARATIONS DE MEDICAMENTS.

INVENTOR(S):

ONUKI, Yoichi, 2-31-7, Nakadai, Narita-shi, Chiba

286-0015, JP;

OKADA, Minoru, 4-7-20, Kioroshihigashi, Inzai-shi, Chiba

270-1323, JP;

SAKAI, Hirotaka, 1-20-6, Yotsukaido, Yotsukaido-shi,

Chiba 284-0005, JP;

KANBE, Hideyoshi, 2-21-8, Mama, Ichikawa-shi, Chiba

272-0826, JP;

MIZUNO, Hiroyuki, 1-24-19, Hiyoshidai, Tomisato-machi,

Inba-gun, Chiba 286-0201, JP;

IMAMORI, Katsumi, 2521-86, Shimoshizushinden,

Yotsukaido-shi, Chiba 284-0006, JP

PATENT ASSIGNEE(S):

SSP Co., Ltd., 12-4, Nihonbashi-hamacho 2-chome,

Chuo-ku, Tokyo 103-8481, JP

PATENT ASSIGNEE NO:

AGENT:

2557581

Hartz, Nikolai, Waechtershaeuser & Hartz,

Patentanwaelte, Weinstrasse 8, 80333 Muenchen, DE

AGENT NUMBER: 85663

OTHER SOURCE: MEPA2004017 EP 1391200 A1 0014

SOURCE: Wila-EPZ-2004-H09-T1b

DOCUMENT TYPE: Patent

LANGUAGE: Anmeldung in Japanisch; Veroeffentlichung in Englisch;

Verfahren in Englisch

DESIGNATED STATES: R AT; R BE; R CH; R CY; R DE; R DK; R ES; R FI; R FR; R

GB; R GR; R IE; R IT; R LI; R LU; R MC; R NL; R PT; R

SE; R TR; R AL; R LT; R LV; R MK; R RO; R SI

PATENT INFO.PUB.TYPE: EPA1 EUROPAEISCHE PATENTANMELDUNG (Internationale

Anmeldung)

PATENT INFORMATION:

	PATENT NO		KIND	DATE
	EP	1391200	A1	20040225
'OFFENLEGUNGS' DATE:				20040225
APPLICATION INFO.:	EΡ	2002-726486		20020524
PRIORITY APPLN. INFO.:	JP	2001-2001156853		20010525
RELATED DOC. INFO.:	WO	200JP2005041	02052	24 INTAKZ
	WO	2002096405	02120	5 INTPNR

## => d his

L2

(FILE 'HOME' ENTERED AT 16:10:09 ON 10 JUN 2004)

FILE 'CAPLUS, USPATFULL, EUROPATFULL, JAPIO, MEDLINE, BIOSIS, EMBASE' ENTERED AT 16:10:45 ON 10 JUN 2004

L1 60 S INHALANT AND (TIOTROPIUM OR (TIOTROPIUM BROMIDE) OR (TIOTROPI

29 S L1 AND (PARTICLE# OR PARTICULATE#)

L3 19 S L2 AND POWDER?

L4 13 S L3 AND CAPSULE?

L5 5 S L4 AND (COPD OR ASTHMA)

L6 2 S L5 AND (METHOD OR PROCESS) AND (MAKING OR PREPARATION OR MAN

FILE 'STNGUIDE' ENTERED AT 16:22:26 ON 10 JUN 2004

FILE 'CAPLUS, USPATFULL, JAPIO, EUROPATFULL, BIOSIS, EMBASE, MEDLINE' ENTERED AT 16:28:44 ON 10 JUN 2004

=> file uspatful

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	63.51	129.59
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
•	ENTRY	SESSION
CA SUBSCRIBER PRICE	-6.24	-6.24

FILE 'USPATFULL' ENTERED AT 16:45:49 ON 10 JUN 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 10 Jun 2004 (20040610/PD)
FILE LAST UPDATED: 10 Jun 2004 (20040610/ED)
HIGHEST GRANTED PATENT NUMBER: US6748598
HIGHEST APPLICATION PUBLICATION NUMBER: US2004111778
CA INDEXING IS CURRENT THROUGH 10 Jun 2004 (20040610/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 10 Jun 2004 (20040610/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2004
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2004

>>> USPAT2 is now available. USPATFULL contains full text of the
>>> original, i.e., the earliest published granted patents or
>>> applications. USPAT2 contains full text of the latest US
>>> publications, starting in 2001, for the inventions covered in

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>>> USPATFULL. A USPATFULL record contains not only the original
     published document but also a list of any subsequent
>>>
                                                                      <<<
>>> publications. The publication number, patent kind code, and
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>>> publication date for all the US publications for an invention
                                                                      <<<
>>> are displayed in the PI (Patent Information) field of USPATFULL
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>>> records and may be searched in standard search fields, e.g., /PN, <<<
>>> /PK, etc.
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     through the new cluster USPATALL. Type FILE USPATALL to
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     enter this cluster.
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>>> Use USPATALL when searching terms such as patent assignees,
                                                                      <<<
>>> classifications, or claims, that may potentially change from
                                                                      <<<
>>> the earliest to the latest publication.
                                                                      <<<
This file contains CAS Registry Numbers for easy and accurate
substance identification.
=> s inhalant and (tiotropium or (tiotropium bromide) or (tiotropium bromide
monhydrate))
          1928 INHALANT
           236 TIOTROPIUM
           236 TIOTROPIUM
        145139 BROMIDE
           133 TIOTROPIUM BROMIDE
                 (TIOTROPIUM (W) BROMIDE)
           236 TIOTROPIUM
        145139 BROMIDE
           156 MONHYDRATE
             0 TIOTROPIUM BROMIDE MONHYDRATE
                 (TIOTROPIUM (W) BROMIDE (W) MONHYDRATE)
L7
            13 INHALANT AND (TIOTROPIUM OR (TIOTROPIUM BROMIDE) OR (TIOTROPIUM
               BROMIDE MONHYDRATE))
=> s 17 and (particle# or particulate#)
        552872 PARTICLE#
        156148 PARTICULATE#
L8
             9 L7 AND (PARTICLE# OR PARTICULATE#)
=> s 12 and powder?
        437594 POWDER?
             3 L2 AND POWDER?
=> d 19 1-3 ibib abs
    ANSWER 1 OF 3 USPATFULL on STN
ACCESSION NUMBER:
                       2004:132947 USPATFULL
TITLE:
                       Medical aerosol formulations
INVENTOR(S):
                       Muller-Walz, Rudi, Schopfheim, GERMANY, FEDERAL
                       REPUBLIC OF
                       Niederlander, Carsten, Riehen, SWITZERLAND
                                        KIND
                            NUMBER
                                                DATE
                        -----
                                        _____
PATENT INFORMATION:
                       US 2004101483
                                         A1 20040527
APPLICATION INFO.:
                       US 2003-473874
                                        A1 20030930 (10)
                       WO 2002-CH145
                                               20020311
                                      DATE
                              NUMBER
PRIORITY INFORMATION:
                       CH 2001-60101 20010330
                                          20010820
                       CH 2001-152701
DOCUMENT TYPE:
                       Utility
```

APPLICATION

FILE SEGMENT:

<<<

LEGAL REPRESENTATIVE: EDWARDS & ANGELL, LLP, P.O. BOX 55874, BOSTON, MA,

02205

NUMBER OF CLAIMS: EXEMPLARY CLAIM:

53

1 LINE COUNT: 986

Calcium salts, magnesium salts and zinc salts of palmitic acid and of stearic acid are suited for use as solid auxiliary agents for medical suspension aerosol formulations based on hydrofluoroalkanes. They improve, in particular, the suspension stability, the mechanical function of the dosing valve, the dosing precision, and the chemical stability of the active substance.

ANSWER 2 OF 3 USPATFULL on STN

ACCESSION NUMBER:

2001:75378 USPATFULL

TITLE:

Methods and compositions for the prevention of

tolerance to medications

INVENTOR(S):

Ahmed, Tahir, Coral Gables, FL, United States

PATENT ASSIGNEE(S):

Baker Norton Pharmaceuticals, Inc., Miami, FL, United

States (U.S. corporation)

NUMBER KIND DATE -----US 6235725 B1 20010522 US 1999-362540 19990728 PATENT INFORMATION: APPLICATION INFO.: 19990728 (9)

> NUMBER DATE \_\_\_\_\_\_

PRIORITY INFORMATION: US 1998-106507P 19981030 (60)

DOCUMENT TYPE: Utility

FILE SEGMENT: Granted
PRIMARY EXAMINER: Peselev, Elli

LEGAL REPRESENTATIVE: Levi-Minzi, Simona A.

NUMBER OF CLAIMS: 35

EXEMPLARY CLAIM:

1

NUMBER OF DRAWINGS:

2 Drawing Figure(s); 2 Drawing Page(s)

LINE COUNT:

985

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

The present invention pertains to the identification of moieties and ΔR methods of using the same for preventing tolerance to bronchodilators. More specifically, the present invention pertains to the identification of compositions and methods which are capable of preventing tolerance to  $\beta.sub.2$  -adrenergic agonists. The methods and compositions according to the invention are also useful as analytical tools for functional studies and as combination therapeutic tools.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ANSWER 3 OF 3 USPATFULL on STN

ACCESSION NUMBER:

2001:67205 USPATFULL

TITLE:

Supercritical fluid extraction of mould lubricant from

hard shell capsules

INVENTOR(S):

Horhota, Stephen T., Brookfield, CT, United States

Saim, Said, New Milford, CT, United States

PATENT ASSIGNEE(S):

Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield,

CT, United States (U.S. corporation)

NUMBER KIND DATE ------US 6228394 US 1998-157267 PATENT INFORMATION: B1 20010508 APPLICATION INFO.: 19980921 (9)

> NUMBER DATE -----

PRIORITY INFORMATION: US 1997-62099P 19971014 (60)

DOCUMENT TYPE: FILE SEGMENT:

Utility

PRIMARY EXAMINER:

Granted

Page, Thurman K. Seidleck, Brian K.

ASSISTANT EXAMINER: LEGAL REPRESENTATIVE:

Raymond, Robert P., Stempel, Alan R., Devlin,

Mary-Ellen M.

NUMBER OF CLAIMS:

EXEMPLARY CLAIM:

NUMBER OF DRAWINGS:

24 Drawing Figure(s); 12 Drawing Page(s)

LINE COUNT:

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Hard shelled capsules and dry, powdered pharmaceutical

formulations are treated with supercritical fluids to remove impurities

such as mold lubricants and moisture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 18 1-9 ibib abs

ANSWER 1 OF 9 USPATFULL on STN

ACCESSION NUMBER:

2004:132947 USPATFULL

TITLE:

Medical aerosol formulations

INVENTOR(S):

Muller-Walz, Rudi, Schopfheim, GERMANY, FEDERAL

REPUBLIC OF

Niederlander, Carsten, Riehen, SWITZERLAND

		NUMBER	KIND	DATE	
PATENT INFORMATION:	US	2004101483	<b>A</b> 1	20040527	
APPLICATION INFO.:	US	2003-473874	A1	20030930	(10)
	WO	2002-CH145		20020311	

NUMBER	DATE
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PRIORITY INFORMATION:

CH 2001-60101

20010330 20010820

DOCUMENT TYPE:

CH 2001-152701

FILE SEGMENT:

Utility APPLICATION

LEGAL REPRESENTATIVE:

EDWARDS & ANGELL, LLP, P.O. BOX 55874, BOSTON, MA,

02205

NUMBER OF CLAIMS:

53

EXEMPLARY CLAIM:

1

LINE COUNT:

986

AΒ

Calcium salts, magnesium salts and zinc salts of palmitic acid and of stearic acid are suited for use as solid auxiliary agents for medical suspension aerosol formulations based on hydrofluoroalkanes. They improve, in particular, the suspension stability, the mechanical function of the dosing valve, the dosing precision, and the chemical stability of the active substance.

ANSWER 2 OF 9 USPATFULL on STN L8

ACCESSION NUMBER:

2003:283185 USPATFULL

TITLE:

Nitrosated and nitrosylated compounds and compositions

and their use for treating respiratory disorders

INVENTOR(S):

Garvey, David S., Dover, MA, UNITED STATES Letts, L. Gordon, Dover, MA, UNITED STATES Renfroe, H. Burt, Wellesley, MA, UNITED STATES Richardson, Stewart K., Ashford, CT, UNITED STATES

	NUMBER	KIND	DATE	
-				
PATENT INFORMATION: U	S 2003199529	A1	20031023	
APPLICATION INFO.: U	S 2003-428936	A1	20030505	(10)

RELATED APPLN. INFO.: Division of Ser. No. US 2000-689851, filed on 13 Oct

2000, GRANTED, Pat. No. US 6579863 Division of Ser. No. US 1998-157242, filed on 18 Sep 1998, GRANTED, Pat. No. US 6197762 Division of Ser. No. US 1996-620882, filed on 22 Mar 1996, GRANTED, Pat. No. US 5824669 Division of Ser. No. WO 1997-US4319, filed on 19 Mar 1997,

PENDING

DOCUMENT TYPE: FILE SEGMENT:

Utility APPLICATION

LEGAL REPRESENTATIVE:

EDWARD D GRIEFF, HALE & DORR LLP, 1455 PENNSYLVANIA

AVE, NW, WASHINGTON, DC, 20004

NUMBER OF CLAIMS:

1

EXEMPLARY CLAIM:

1

NUMBER OF DRAWINGS:

29 Drawing Page(s)

LINE COUNT:

2520

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Disclosed are (i) compounds of a steroid, a β-agonist, an anticholinergic, a mast cell stabilizer and a phosphodiesterase (PDE) inhibitor directly or indirectly linked to a NO or NO.sub.2 group or a group which stimulates endogenous production of NO or EDRF in vivo; (ii) compositions of steroids, β-agonists, anticholinergics, mast cell stabilizers and PDE inhibitors, which can optionally be substituted with at least one NO or NO.sub.2 moiety or a group which stimulates endogenous production of NO or EDRF in vivo, and a compound that donates, transfers or releases nitric oxide as a charged species, i.e., nitrosonium (NO.sup.+) or nitroxyl (NO.sup.-), or as the neutral species, nitric oxide (NO.cndot.) or that stimulates endogenous production of NO or EDRF in vivo; and (iii) uses for them in preventing

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

and/or treating respiratory disorders.

L8 ANSWER 3 OF 9 USPATFULL on STN

ACCESSION NUMBER:

2003:176162 USPATFULL

TITLE:

Medicinal aerosol formulations

INVENTOR(S):

Keller, Manfred, Bad Krozingen, GERMANY, FEDERAL

REPUBLIC OF

Herzog, Kurt, Basel, SWITZERLAND

Muller-Walz, Rudi, Schopfheim, GERMANY, FEDERAL

REPUBLIC OF

Kraus, Holger, Rickenbach, SWITZERLAND

PATENT ASSIGNEE(S):

Jago Research AG, Muttenz, SWITZERLAND (non-U.S.

corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION: US	6585958	B1	20030701	
WO	2000006121		20000210	
APPLICATION INFO.: US	2001-744379		20010413	(9)
WO	1999-CH337		19990722	

NUMBER DATE

PRIORITY INFORMATION:

CH 1998-1565 19980724

DOCUMENT TYPE: FILE SEGMENT:

Utility GRANTED

PRIMARY EXAMINER:
ASSISTANT EXAMINER:

Hartley, Michael G. Haghighatian, M. Selitto, Behr & Kim

LEGAL REPRESENTATIVE: NUMBER OF CLAIMS:

51

EXEMPLARY CLAIM:

- ·

NUMBER OF DRAWINGS:

0 Drawing Figure(s); 0 Drawing Page(s)

LINE COUNT:

995

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A pressure-liquefied propellant mixture for aerosols, comprising

dinitrogen monoxide and a hydrofluoroalkane having 1 to 3 carbon atoms, in particular 1,1,1,2-tetrafluoroethane and/or 1,1,1,2,3,3,3-heptafluoropropane, makes possible an improvement in the wetting properties of pharmaceutically active compounds, whereby the formulation problems existing with hydrofluoroalkanes can be overcome with respect to suspension and solution aerosols and thus improved medicinal aerosol formulations can be obtained. With the aid of dinitrogen monoxide, it is also possible to influence the pressure and thus the particle size distribution specifically and, by displacement of oxygen from the hydrofluoroalkanes, to improve the storage stability of oxidation-sensitive active compounds. If desired, the propellant mixture can additionally contain carbon dioxide.

# CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 4 OF 9 USPATFULL on STN

ACCESSION NUMBER: 2003:161952 USPATFULL

TITLE: Nitrosated and nitrosylated compounds and compositions

and their use for treating respiratory disorders

INVENTOR(S): Garvey, David S., Waltham, MA, United States

Letts, L. Gordon, Dover, MA, United States
Renfroe, H. Burt, Wellesley, MA, United States
Richardson, Stewart K., Ashford, CT, United States
Nitromed, Inc., Podford, MA, United States (U.S.)

PATENT ASSIGNEE(S): Nitromed, Inc., Bedford, MA, United States (U.S.

corporation)

APPLICATION INFO.: US 2000-689851 20001013 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1998-157242, filed on 18 Sep

1998, now patented, Pat. No. US 6197762 Division of Ser. No. US 1996-620882, filed on 22 Mar 1996, now patented, Pat. No. US 5824669 Continuation of Ser. No.

WO 1997-US4319, filed on 19 Mar 1997

DOCUMENT TYPE: Utility FILE SEGMENT: GRANTED

PRIMARY EXAMINER: Badio, Barbara P. LEGAL REPRESENTATIVE: Hale and Dorr LLP

NUMBER OF CLAIMS: 28 EXEMPLARY CLAIM: 1

NUMBER OF DRAWINGS: 29 Drawing Figure(s); 29 Drawing Page(s)

LINE COUNT: 2028

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Disclosed are (i) compounds of a steroid, a  $\beta$ -agonist, an anticholinergic, a mast cell stabilizer and a phosphodiesterase (PDE) inhibitor directly or indirectly linked to a NO or NO.sub.2 group or a group which stimulates endogenous production of NO or EDRF in vivo; (ii) compositions of steroids,  $\beta$ -agonists, anticholinergics, mast cell stabilizers and PDE inhibitors, which can optionally be substituted with at least one NO or NO.sub.2 moiety or a group which stimulates endogenous production of NO or EDRF in vivo, and a compound that donates, transfers or releases nitric oxide as a charged species, i.e., nitrosonium (NO.sup.+) or nitroxyl (NO.sup.-), or as the neutral species, nitric oxide (NO.cndot.) or that stimulates endogenous production of NO or EDRF in vivo; and (iii) uses for them in preventing and/or treating respiratory disorders.

## CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 5 OF 9 USPATFULL on STN

ACCESSION NUMBER: 2001:75378 USPATFULL

TITLE: Methods and compositions for the prevention of

tolerance to medications

INVENTOR(S): Ahmed, Tahir, Coral Gables, FL, United States

Baker Norton Pharmaceuticals, Inc., Miami, FL, United PATENT ASSIGNEE(S):

States (U.S. corporation)

KIND DATE NUMBER -----US 6235725 B1 20010522 PATENT INFORMATION:

US 1999-362540 APPLICATION INFO.: 19990728 (9)

> NUMBER DATE -----

PRIORITY INFORMATION: US 1998-106507P 19981030 (60)

DOCUMENT TYPE: Utility FILE SEGMENT: Granted

PRIMARY EXAMINER: Peselev, Elli

LEGAL REPRESENTATIVE: Levi-Minzi, Simona A.

NUMBER OF CLAIMS: 35 EXEMPLARY CLAIM:

NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)

LINE COUNT: 985

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

The present invention pertains to the identification of moieties and methods of using the same for preventing tolerance to bronchodilators. More specifically, the present invention pertains to the identification of compositions and methods which are capable of preventing tolerance to  $\beta.sub.2$  -adrenergic agonists. The methods and compositions according to the invention are also useful as analytical tools for

functional studies and as combination therapeutic tools.

### CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ANSWER 6 OF 9 USPATFULL on STN

ACCESSION NUMBER: 2001:67205 USPATFULL

TITLE: Supercritical fluid extraction of mould lubricant from

hard shell capsules

INVENTOR(S): Horhota, Stephen T., Brookfield, CT, United States

Saim, Said, New Milford, CT, United States

PATENT ASSIGNEE(S): Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield,

CT, United States (U.S. corporation)

NUMBER KIND DATE -----US 6228394 B1 20010508 US 1998-157267 19980921 PATENT INFORMATION: APPLICATION INFO.: 19980921 (9)

NUMBER DATE ------

PRIORITY INFORMATION: US 1997-62099P 19971014 (60) DOCUMENT TYPE:

Utility FILE SEGMENT: Granted PRIMARY EXAMINER:

Page, Thurman K. ASSISTANT EXAMINER: Seidleck, Brian K.

LEGAL REPRESENTATIVE: Raymond, Robert P., Stempel, Alan R., Devlin,

Mary-Ellen M.

NUMBER OF CLAIMS: 21 EXEMPLARY CLAIM:

NUMBER OF DRAWINGS: 24 Drawing Figure(s); 12 Drawing Page(s)

LINE COUNT: 1487

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Hard shelled capsules and dry, powdered pharmaceutical formulations are treated with supercritical fluids to remove impurities such as mold lubricants and moisture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ANSWER 7 OF 9 USPATFULL on STN

ACCESSION NUMBER: 2001:42141 USPATFULL

Nitrosated and nitrosylated compounds, and compositions TITLE:

and their use for treating respiratory disorders

Garvey, David S., Dover, MA, United States INVENTOR (S):

Letts, L. Gordon, Dover, MA, United States Renfroe, H. Burt, Wellesley, MA, United States Richardson, Stewart K., Ashford, CT, United States

NitroMed, Inc., Bedford, MA, United States (U.S. PATENT ASSIGNEE(S):

corporation)

NUMBER KIND DATE 

US 37116 E1 20010327 US 5824669 19981020 PATENT INFORMATION:

19981020 (Original) 19981223 (9) 19960322 (Original)

APPLICATION INFO.: US 1998-219476

US 1996-620882

DOCUMENT TYPE: Reissue FILE SEGMENT: Granted

PRIMARY EXAMINER: Rotman, Alan L. LEGAL REPRESENTATIVE: Hale and Dorr LLP

NUMBER OF CLAIMS: 39 EXEMPLARY CLAIM:

NUMBER OF DRAWINGS: 29 Drawing Figure(s); 29 Drawing Page(s)

LINE COUNT:

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Disclosed are (i) compounds of a steroid, a  $\beta$ -agonist, an anticholinergic, a mast cell stabilizer and a phosphodiesterase (PDE) inhibitor directly or indirectly linked to a NO or NO.sub.2 group or a group which stimulates endogenous production of NO or EDRF in vivo; (ii) compositions of steroids,  $\beta$ -agonists, anticholinergics, mast cell stabilizers and PDE inhibitors, which can optionally be substituted with at least one NO or NO.sub.2 moiety or a group which stimulates endogenous production of NO or EDRF in vivo, and a compound that donates, transfers or releases nitric oxide as a charged species, i.e., nitrosonium (NO.sup.+) or nitroxyl (NO.sup.-), or as the neutral species, nitric oxide (NO.circle-solid.) or that stimulates endogenous production of NO or EDRF in vivo; and (iii) uses for them in preventing and/or treating respiratory disorders. ##STR1##

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ANSWER 8 OF 9 USPATFULL on STN L8

ACCESSION NUMBER: 2001:33259 USPATFULL

TITLE:

Nitrosated and nitrosylated steroids compositions, and

methods for treating respiratory disorders Garvey, David S., Waltham, MA, United States Letts, L. Gordon, Dover, MA, United States Renfroe, H. Burt, Wellesley, MA, United States

Richardson, Stewart K., Ashford, CT, United States PATENT ASSIGNEE(S): NitroMed, Inc., Bedford, MA, United States (U.S.

corporation)

NUMBER KIND DATE -----US 6197762 B1 20010306 US 1998-157242 19980918 (9) PATENT INFORMATION: APPLICATION INFO.:

RELATED APPLN. INFO.: Division of Ser. No. US 1996-620882, filed on 22 Mar

1996, now patented, Pat. No. US 5824669 Continuation of

Ser. No. WO 1997-US4319, filed on 19 Mar 1997

DOCUMENT TYPE: Utility FILE SEGMENT: Granted

PRIMARY EXAMINER: Rotman, Alan L. ASSISTANT EXAMINER: Desai, Rita LEGAL REPRESENTATIVE: Hale and Dorr LLP

NUMBER OF CLAIMS: 16

INVENTOR (S):

EXEMPLARY CLAIM:

NUMBER OF DRAWINGS: 29 Drawing Figure(s); 29 Drawing Page(s)

LINE COUNT: 1841

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are (i) compounds of a steroid, a β-agonist, an anticholinergic, a mast cell stabilizer and a phosphodiesterase (PDE) inhibitor directly or indirectly linked to a NO or NO.sub.2 group or a group which stimulates endogenous production of NO or EDRF in vivo; (ii) compositions of steroids, β-agonists, anticholinergics, mast cell stabilizers and PDE inhibitors, which can optionally be substituted with at least one NO or NO.sub.2 moiety or a group which stimulates endogenous production of NO or EDRF in vivo, and a compound that donates, transfers or releases nitric oxide as a charged species, i.e., nitrosonium (NO.sup.+) or nitroxyl (NO.sup.-), or as the neutral species, nitric oxide (NO.cndot.) or that stimulates endogenous production of NO or EDRF in vivo; and (iii) uses for them in preventing and/or treating respiratory disorders.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 9 OF 9 USPATFULL on STN

ACCESSION NUMBER:

1998:128257 USPATFULL

TITLE:

Nitrosated and nitrosylated compounds and compositions

and their use for treating respiratory disorders

INVENTOR(S):

Garvey, David S., Dover, MA, United States Letts, L. Gordon, Dover, MA, United States Renfroe, H. Burt, Wellesley, MA, United States Richardson, Stewart K., Ashford, CT, United States NitroMed, Inc., Bedford, MA, United States (U.S.

PATENT ASSIGNEE(S):

corporation)

NUMBER KIND DATE

PATENT INFORMATION:

US 5824669 19981020 US 1996-620882 19960322

APPLICATION INFO.: DOCUMENT TYPE:

Utility Granted

FILE SEGMENT: PRIMARY EXAMINER:

Rotman, Alan L. Hale and Dorr LLP

LEGAL REPRESENTATIVE: NUMBER OF CLAIMS:

19

EXEMPLARY CLAIM: NUMBER OF DRAWINGS:

29 Drawing Figure(s); 29 Drawing Page(s)

LINE COUNT:

1812

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

Disclosed are (i) compounds of a steroid, a β-agonist, an anticholinergic, a mast cell stabilizer and a phosphodiesterase (PDE) inhibitor directly or indirectly linked to a NO or NO.sub.2 group or a group which stimulates endogenous production of NO or EDRF in vivo; (ii) compositions of steroids, β-agonists, anticholinergics, mast cell stabilizers and PDE inhibitors, which can optionally be substituted with at least one NO or NO.sub.2 moiety or a group which stimulates endogenous production of NO or EDRF in vivo, and a compound that donates, transfers or releases nitric oxide as a charged species, i.e., nitrosonium (NO.sup.+) or nitroxyl (NO.sup.-), or as the neutral species, nitric oxide (NO.circle-solid.) or that stimulates endogenous production of NO or EDRF in vivo; and (iii) uses for them in preventing and/or treating respiratory disorders.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.